

REMARKS

The claims have been revised better to point out that which applicants claim as their invention and to overcome the rejection of claims 5, 17, 18, and 24 under the second paragraph of 35 USC 112. Those specifically noted claims have been amended to eliminate "type." Each of independent claims 1 to 4, 8 through 12, 15, 20, and 21 have been modified to specify that the substance used for shifting a recorded wavelength present in the first and/or second adhesive layers is a tackifier. (The Examiner is directed to Example A3 on page 56 for a working example showing use of a tackifier, here a terpene phenol resin, as a shifting substance.) Claims 7 and 14 accordingly have been canceled and the first member of the Markush group in claim 17 has been canceled so that the claim recites a Markush group of various tackifiers.

Independent claims 22, 23, 26, and 27 have not been changed. Those claims specify that a (meth)acrylic monomer is in the first and/or second adhesive layers and that a half width value of a respective reproduced wavelength range is at least 30 nm (see claims 22 and 26) or at least 20 nm (see claims 23 and 27). The claims before the Examiner thus are claims 1 to 6, 8 to 13, and 15 to 27

The rejection of claims 1 and 3 and 15 to 17 under 35 USC 102 as allegedly fully anticipated by Nakamachi et al. '525, if applied

to the claims as amended, is respectfully traversed. The independent claims have been revised to specify that the substance for shifting a recorded wavelength to the volume hologram layer is a tackifier. This subject matter is in no fashion taught or suggested in Nakamachi et al. '525. Applicants maintain the position taken in the last reply that Nakamachi et al. '525 is not pertinent because the reference describes a laminated glass having incorporated therein a hologram sheet structured to prevent wavelength shift. The teaching is the direct opposite of the instant invention. Neither the working examples nor the comparative examples in the patent teach or suggest the invention as claimed. Applicants also see no proper basis in the reference for the Examiner's assertion that "the color tuning film has adhesive properties and therefore acts as an adhesive layer." Applicants pointed out at the bottom of page 12 of the last reply that the Ueda et al. '598 article has the structure shown because the patentees were not aware of the advantages provided by the present invention. The Examiner will note the common assignee.

Applicants also respectfully traverse the rejection of claims 1, 4, 6 to 8, 11 to 13, 15 to 17 and 19 to 21 under 35 USC 102 as allegedly fully anticipated by Ueda et al. '598, if applied to the claims as amended. While applicants acknowledge and appreciate the Examiner's detailed explanation of this and the other rejections,

applicants believe that the change to all of the independent claims involved in this rejection make the reference even less pertinent. There is no teaching or suggestion in the reference of adding a tackifier as a wavelength shifting substance to one or both of the adhesive layers in the system and the rejection should be withdrawn.

The rejection of claims 1, 3, 6, and 7 under 35 USC 102 as clearly anticipated by Mizutani et al. '626, if applied to the claims as amended, is also respectfully traversed. The reference discloses, as the Examiner acknowledges, adhesive layers containing plasticizers; there is no teaching or suggestion in the reference however of using tackifiers for recorded wavelength shift purposes. Nor does the reference in its discussion of the various molecular weights of the adhesive mention use of a wavelength shifting substance or why it is advantageous to use such a substance. The rationale for using an adhesive with a molecular weight between 800,000 and 1,300,000 is explained at column 3, lines 37 to 51. There is no mention of a wavelength shifting substance. Moreover, Mizutani et al. '626 teaches and is directed to a manner of preventing shifting by having an adhesive layer function as a barrier layer. The rejection should be withdrawn.

The rejection of claims 1 to 27 under 35 USC 103 as unpatentable over Morii et al. WO '607 is also respectfully

traversed. With respect to the subject matter of claims 1 to 21, there is no teaching in the reference of using a tackifier in the first and/or second adhesive layers to shift a recorded wavelength. With respect to the subject matter of claims 22 to 27, there is no teaching or suggestion in the reference of using a (meth)acrylic monomer in the first and/or second adhesive layers that in turn is responsible for half width value of a respective reproduced wavelength range of either at least 20 nm or at least 30 nm. The discussion at column 45, line 62 to column 46, line 5 of the Morii et al. WO '607 U.S. counterpart (6,066,378) about the possibility of altering the peak wavelength of the volume hologram or widening the volume hologram's diffraction wavelength range by passage of the monomer or plasticizer into the volume hologram layer is not enough to teach or suggest the invention particularly claimed herein. The reference, as noted in the last reply, concerns using an adhesive containing an encapsulated diffusing material that is used to destroy the hologram should the laminate be peeled apart forcibly. The reference concept differs entirely from the present invention. The rejection should be withdrawn.

Applicants also respectfully traverse the rejection of claims 1 to 4, 6 to 17 and 19 to 21 under 35 USC 103 as unpatentable over Ueda et al. '598 and Smothers et al. EP '772 in view of Mizutani et al. '626 and or Kai et al. JP '484.

Smothers et al. EP '772 is said to show the use of various plasticizers and surfactants. There is no teaching or suggestion in this reference, just as there is no teaching or suggestion in Ueda et al. '598, of a tackifier being present in the first and/or second adhesive layers for controlling the reproduced wavelength of the hologram recorded in the volume hologram layer by shifting of a tackifier between the layers.

Kai JP '484 also neither teaches nor suggests the arrangement claimed including using a tackifier as a shifting substance and the rejection should be withdrawn.

The rejection of claims 1 to 4, 6 to 17, and 19 to 22 under 35 USC 103 as unpatentable over Ueda et al. '598 and Smothers et al. EP '772 in view of Morii et al. WO '607 is also respectfully traversed. Each of the cited references have been discussed above. Applicants have pointed out that none of those references teach or suggest the use of a tackifier in the first and/or second adhesive layers in the volume hologram to control a reproduced wavelength of the hologram recorded in the volume hologram layer as a result of the shifting of the tackifier between the layers. The rejection should be withdrawn.

Applicants also respectfully traverse the rejection of claims 1 to 27 under 35 USC 103 as unpatentable over Ueda et al. '598 and

Smothers et al. EP '772 in view of Yamagishi et al. JP '684, Tarumi et al. '107 or Weber et al. '863.

As to the subject matter of claims 1 to 21 (now claims 1 to 6, 8 to 13 and 15 to 21), there is no teaching or suggestion in any of the cited references regarding the use of a tackifier in the first and/or second adhesive layers in the volume hologram laminate to control the reproduced wavelength of the hologram recorded in the volume hologram layer as a result of the shift of the tackifier between the layers.

With respect to the subject matter of claims 22 to 27, the references do not in combination teach or suggest the use of a (meth)acrylic monomer in the first and/or second adhesive layers to give a half width value of a respective reproduced wavelength in the volume hologram layer of at least 20 nm. The citation of various references showing acrylic-based adhesives with other components or layers does not lead the artisan to the invention claimed here. The rejection should be withdrawn.

In view of the foregoing revisions and remarks, it is respectfully submitted that claims 1 to 6, 9 to 13 and 15 to 27 are in condition for allowance and a USPTO paper to those ends is earnestly solicited.

The Examiner is requested to telephone the undersigned if further changes are required prior to allowance.

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Date
CAW/ch

Respectfully submitted,

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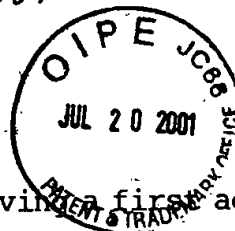
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(Twice Amended)

MARKUP

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WHAT IS CLAIMED IS:

1. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a substance for shifting a recorded wavelength to the volume hologram layer is contained in the first and/or the second adhesive layer(s) and a reproduced wavelength of hologram recorded in the volume hologram layer is controlled with shifting the substance between the layers ~~from the volume hologram layer~~.

the substance

(Amended)

2. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a substance for shifting a recorded wavelength to the volume hologram layer is contained in either one of the first and the second adhesive layers, the substance is not contained in other adhesive layer, and a reproduced wavelength of hologram recorded in the volume hologram layer is controlled with shifting the substance between the layers.

being a tackifier

(Amended)

the substance being a tackifier

3. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a substance for shifting a recorded wavelength to the volume hologram layer is contained in the first and the second adhesive layers and the substance is not shifted from the layers to the volume hologram layer.

the substance being a tackifier

(Twice Amended)

4. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a film for shifting a recorded wavelength is put between the first adhesive layer and the volume hologram layer or between the second adhesive layer and the volume hologram layer, a substance for shifting a recorded wavelength to the volume hologram layer is contained in one of the adhesive layers without the film, and a reproduced wavelength of hologram recorded in

the volume hologram layer is controlled with shifting the substance between the respective adhesive layer and the film as well as between the adhesive layer and the volume hologram layer ~~or without shifting.~~ *the substance being a tackifier*

(Three Times Amended)

5. ¹ A volume hologram laminate according to ~~any one of~~ Claims 1-4, wherein the adhesive layer is a crosslinking [type] two component adhesive ~~which~~ ^{that} is crosslinked at the time of use by addition of a crosslinking agent.

6. A volume hologram laminate according to [any one of] Claims 1-4, wherein the volume hologram layer comprises a photopolymerizable compound and the layer is recorded holographically.

7. A volume hologram laminate according to [any one of] Claims 1-4, wherein the substance for shifting a recorded wavelength is at least one compound of a photopolymerizable compound constituting the volume hologram layer, a plasticizer and a surfactant, or a tackifier and polyalkylene glycol.

(Twice Amended)

8. ¹ A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a substance for shifting a recorded wavelength to the volume hologram layer is contained in the first and/or the second adhesive layer(s) and a reproduced wavelength of hologram recorded in the volume hologram layer is controlled with shifting the substance between the layers ~~or without shifting.~~ *the substance being a tackifier*

(Amended)

9. ¹ A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a substance for shifting a recorded wavelength to the volume hologram layer is contained in either one of the first and the second adhesive layers,

the substance is not contained in other adhesive layer, and a reproduced wavelength of hologram recorded in the volume hologram layer is controlled with shifting the substance between the layers.

(Amended) the substance being a tackifier

10. \wedge A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a substance for shifting a recorded wavelength to the volume hologram layer is contained in the first and the second adhesive layers and the substance is not shifted from the layers to the volume hologram layer.

(Twice Amended) the substance being a tackifier

11. \wedge A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a film for shifting a recorded wavelength is put between the first adhesive layer and the volume hologram layer or between the second adhesive layer and the volume hologram layer, a substance for shifting a recorded wavelength to the volume hologram layer is contained in one of the adhesive layers without the film, and a reproduced wavelength of hologram recorded in the volume hologram layer is controlled with shifting the substance between the respective adhesive layer and the film as well as between the adhesive layer and the volume hologram layer.

(Amended) the substance being a tackifier

12. \wedge A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a substance with a refractive index lower than that of the volume hologram layer for shifting a recorded wavelength is contained in the first and/or the second adhesive layer(s) and a reproduced wavelength of hologram recorded in the volume hologram layer is shifted to a short wavelength side.

(Amended) the substance being a tackifier

13. A volume hologram laminate according to Claim 12, wherein the refractive index of the substance for shifting a recorded wavelength is at least 0.1 at 25°C lower than that of the volume hologram layer.

3 14. A volume hologram laminate according to Claim 12, wherein the substance for shifting a recorded wavelength is at least one of silicone [type] compounds and fluorine [type] compounds.

(Amended)
15. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a substance with a refractive index higher than that of the volume hologram layer for shifting a recorded wavelength is contained in the first and/or the second adhesive layer(s) and a reproduced wavelength of hologram recorded in the volume hologram layer is shifted to a long wavelength side.

*The substance being
a tackifier*

16. A volume hologram laminate according to Claim 15, wherein the refractive index of the substance for shifting a recorded wavelength is at least 0.06 at 25°C higher than that of the volume hologram layer.

(Amended)
17. A volume hologram laminate according to Claim 15, wherein the substance for shifting a recorded wavelength is at least one of [aromatic compounds,] rosin [type] tackifiers, terpene [type] tackifiers and synthetic resin [type] tackifiers.

(Three Times Amended)
18. A volume hologram laminate according to Claim 12 ~~or 15~~, wherein the adhesive layer is formed of a crosslinking [type] two component adhesive ~~which~~ ^{that} is crosslinked at the time of use by addition of a crosslinking agent.

19. A volume hologram laminate according to Claim 12 [or 15], wherein a volume hologram layer comprises a photopolymerizable compound and the layer is recorded holographically.

(Amended)

20. [^] A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a substance with a refractive index lower than that of the volume hologram layer for shifting a recorded wavelength is contained in the first and/or the second adhesive layer(s) and a reproduced wavelength of hologram recorded in the volume hologram layer is shifted to a short wavelength side. *the substance being a tackifier*

(Amended)

21. [^] A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a substance with a refractive index higher than that of the volume hologram layer for shifting a recorded wavelength is contained in the first and/or the second adhesive layer(s) and a reproduced wavelength of hologram recorded in the volume hologram layer is shifted to a long wavelength side. *the substance being a tackifier*

22. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on the substrate in the described order, wherein a (meth)acrylic monomer is contained in the first and/or the second adhesive layer(s), a volume hologram layer is recorded holographically with light having a single wavelength, and a half width value of a respective reproduced wavelength range is 30nm or more.

23. A volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a substrate in the described order, wherein a (meth)acrylic monomer is contained in the first and/or the second adhesive layer(s), the volume hologram layer is color-recorded holographically with light having two or more wavelengths, and a half width value of a respective reproduced wavelength range is 20nm or more.

(Three Times Amended)

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24. ^ A volume hologram laminate according to Claim 22 ~~Amended~~, wherein the adhesive layer is a crosslinking [type] two component adhesive ~~which~~ ^{that} is crosslinked at the time of use by addition of a crosslinking agent.

25. A volume hologram laminate according to Claim 22 ~~or 23~~, wherein the volume hologram layer comprises a photopolymerizable compound and the layer is recorded holographically.

26. A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a (meth)acrylic monomer is contained in the first and/or the second adhesive layer(s) and a half width value of a respective reproduced wavelength range is 30nm or more.

27. A label for preparation of a volume hologram laminate having a first adhesive layer, a volume hologram layer, a second adhesive layer and a surface protecting film formed on a release liner sheet in the described order, wherein a (meth)acrylic monomer is contained in the first and/or the second adhesive layer(s), the volume hologram layer is color-recorded holographically with light having two or more wavelengths, and a half width value of a respective reproduced wavelength range is 20nm or more.